DOCUMENT RESUME

ED 157 836 SO 011 048

TITLE	Indian River County Environmental Education Instructional Guide. Social Studies, Eighth Grade.
INSTITUTION	Florida State Dept. of Education, Tallahassee.
PUB DATE	75
NOTE	68p.; For related documents, see SO 011 046-049; Not available in hard copy from EDRS due to poor reproducibility of original document
AVAILABLE FROM	Office of Environmental Education, Department of Education, Knott Building, Tallahassee, Florida 32304 (on loan)
EDRS PRICE	MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS	Biological Sciences; *Concept Teaching; *Conservation (Environment); Ecology; Environment; *Environmental Education; Grade 8; Land Use; *Learning Activities; Natural Resources; Pollution; *Population Trends; Secondary Education; Social Problems; *Social Studies; Teaching Guides

ABSTRACT

The teaching guide presents social studies activities for eighth graders to learn about environmental concepts, problems, and responsibilities. Part of a series for teachers, students, and community members, it is based on the Indian River County environment in Florida. The introduction identifies the county's natural resources, wildlife, and issues of environmental concern. The activities are based on concepts emphasizing the interdependence of all living things and the effects of population growth upon the environment. Some of the activities focus on local problems of Indian River County. For example, students consider the territorial needs of endangered species and examine ways in which modern society changes or destroys their habitats. Other activities involve identifying material goods for which settlers moved west, discovering differences in American Indians' and white settlers' use of natural resources, and exploring causes of wars between nations. Students also discuss pollution caused by industrial waste and population density. Appendices contain outline maps of the United States and Europe to be used in making transparencies for some of the activities. (AV)

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INDIAN RIVER COUNTY

ENVIRONMENTAL EDUCATION INSTRUCTIONAL GUIDE

Florida State Department of Education

SOCIAL STUDIES
EIGHTH GRADE

1975

SO 011 048

INDIAN RIVER COUNTY
ENVIRONMENTAL EDUCATION PROGRAM

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ENVIRONMENTAL EDUCATION

INSTRUCTIONAL GUIDE

This publication serves as the teaching nucleus for Environmental Education activities in Junior High. The development of this program is a joint effort of teachers and staff of the Indian River County Schools.

This Guide was developed by: Mrs. Marsha Albrecht
Mr. Will Trayner -
Vero Beach Junior
High School

The Introduction was written by Mr. Phil Parisi - Vero Beach
Elementary School

We wish to thank the Title III, E.S.E.A. Lee County Environmental Education Project as the conceptual framework for the organization of the guides comes from their work. Also, some of the activities in this guide are from their Interdisciplinary Concepts and Activities Guides.

This publication is one in a series developed by the Environmental Education Program for Indian River County Schools. This series is designed to be used by teachers, students and community members to help them to utilize community resources in developing and teaching environmental concepts, responsibility and in seeking ways to solve environmental problems. All materials are in pilot form and may be revised.

The work presented or reported herein was performed pursuant to a grant from the State Department of Education, Office of Environmental Education.

INTRODUCTION

ABOUT THE ENVIRONMENT

The environment is perhaps the most important complex of systems for man. Yet it is perhaps the most abused. It is becoming trite to say this, but none the less true--unless we change our ways, we will die.

Throughout history men have been able to change. They have done this with much pain and toil. The responsibility of this change has in the past rested on certain individual leaders. Today these leaders must reach a wide population and they must reach them at a time when habits are forming. The teachers of today are the leaders who must take up the cause of educating future populations about the delicate balance we live in.

It seems strange that many peoples of the world (American Indians, for one) need no formal or separate environmental education program for their young. Indian children grow up with the notion that the universe and the environment is one living thing. It must be respected and revered as something sacred. But somehow, modern man has lost vision of that simple concept, if indeed he ever possessed it. Environmental education is a way we can regain a respect that seems to come natural to some populations. It is a way we can be fit for survival and for prevailing on Earth.

In the year 2006, the earth will have doubled the present number of people. Within just 35 years another 3 billion people will be competing for the world's already taxed resources. This is not a problem of future generations, but an existing one that you and your students are already witnessing. As the population soars, crime rates, suicides, and psychological disorders increase at disproportional rates. More species are constantly being added to the endangered species lists, and more wilderness areas are continually being infringed upon by development. Our soil is lost at an alarming rate as it, with a heavy load of fertilizer, is being washed by rains into our precious water supplies.

INTRODUCTION

ABOUT ENVIRONMENTAL EDUCATION

There doesn't appear to be any part of this planet that is not affected by man's hand. Distributing the world's limited resources and minimizing the damage to our planet is going to be difficult. The dilemma is not going to be the problem of any one discipline area; rather, it will touch each of us, in all phases of our lives. Maintaining a quality of life will necessitate new directions in our literature, economics, psychology, food choices, engineering, and even in our daily lives.

Attaining environmental quality is everyone's responsibility, and, as such, it is going to require knowledge on the part of all our citizens. If our students are to make intelligent choices they will feel comfortable living with, they are going to need you to provide them with much of the background information they will need. Our environmental problems demand our attention in every phase of the curriculum so that our students can be prepared to solve this enigma.

Three themes or stages in educating a student to prepare him for environmental choices are: 1) awareness of the environment; 2) knowledge of the environment; and 3) action in the sense of effecting a solution.

Predicting the experiences and knowledge students will need in the future is always a difficult task. However, a few basics are readily identifiable. It seems logical to assume that a person cannot make intelligent decisions if he is not aware of the problem, or even the existence of the area that has the problem. Next, it is important that he understands or has some basic knowledge about the stressed area and the stress factors involved. Finally, once an individual is aware of a problem and has knowledge about it, he must have the tools to effect a solution for the problem.

We have targeted awarenesses at the primary and lower intermediate grades, knowledge at the upper intermediate and middle school level, and action begins in

the upper middle school running through the high school and into the adult community.

The K-9 curriculum guides compiled by various environmentalists are organized around several basic conceptual schemes that were felt to be necessary for a working knowledge of the environment. In addition,these schemes and the activities suggested for their illustration, have been applied as much as possible to the unique problems of Indian River County.

A FINAL NOTE

Education about the environment can too easily become merely an academic exercise, rather than vital interaction. Many researchers have shown that the discovery method of learning allows a more thorough and lasting attainment of the desired principles and it heightens motivation at the same time. The discovery method provides an individual experience and allows success for a wide ability range of students, because it is discovering new knowledge at each student's own particular level.

Your role in the environmental education campaign is important for the student's ability to perceive the subtleties of nature will often depend on your guidance. Most often this is not done through telling the student the names of everything he sees. We need to guide him to the relationships and beauties rather than tell him about it. The student will be eternally grateful to the teacher who helps him observe the natural wonders he encounters. He will long remember the first time he saw a beautiful bird or had someone help him closely examine a delicate wildflower. If we ask him guiding questions which lead him to make his own discoveries we are doing him the greatest service a teacher can do; we are leading the person to the knowledge about using his own brain. We are showing him how to use his capacities of reason and understanding and enjoyment.

INDIAN RIVER COUNTY RESOURCES

The Florida Division of Forestry survey of 1971 showed 44.4 thousand acres of forest land in Indian River County. This report rated the land's most valuable asset as a scenic and recreation amenity. Forestland is also a favorable modifier of the increasingly contaminated environment caused by increased population growth, urbanization, and industrialization and provides relief from crowded city living.

There are five forest types. They are listed here from largest acreage to smallest.

1. Pine flatwoods, characterized by open stand of slash pine mingled with an understory of scrub palmetto and grass.
2. Hardwood and cypress swamps--include tupelo, black gum, sweet gum, some of the oaks singly or in combination, and often associated with willow, ash, elm, water hickory and maple. The soil here is rich.
3. Sand pine scrub--found on higher, drier ridges, principally on St. Lucie sands.
4. Mixed pine hardwood--found in the transition zones along major streams and drainage between the bottomland hardwood swamps and the pine flatwoods. This is a mixture of longleaf and slash pine, associated with willow oak, live oak, sweet gum and hickory.
5. Mangrove forest--along the costal islands and tidal flats, consisting of red and black margrove in dense thickets along partially submerged lands subject to periodic wash by high tides and brackish estuarine waters.

The importance of natural hardwood, swamps, and wetlands as a natural filter should not be overlooked. Repeated studies and experience elsewhere show that

water delivered through natural drainage tends to improve in quality through the process of self-purification as it flows through and into the forest floor--that spongy, natural filter made up of debris, leaves and partially decayed vegetative duff. Water drained out of any watershed by canal will not show the improved quality of this naturally filtered product.

Although the hardwood and cypress swamps (consisting of a little over 10,000 acres of forested land) remained largely intact in this area for many years, they have been abused by over-cutting, promiscuous burning, over-grazing, and draining, all of which detract from their usefulness as a natural filter. Since 1970 drastic reductions of the hardwood Cypress community has occurred by the drainage of large areas of marsh for citrus production.

The value of mangrove forests to the marine ecosystem is well known. According to the distinguished ecologist, Dr. E. P. Odum of the University of Georgia, this interaction of land, sea, air and sunlight provides some of the richest food-producing areas in the world--20 times as productive per unit as the open sea, seven times as productive as an alfalfa field, and twice as productive as a field of corn!! Efforts should be continued to preserve the existing mangrove along the Indian River and expand it to the barren islands capable of supporting this growth. Some preliminary efforts at seed collection and restablishment are going on here and elsewhere in the state where this problem exists.

The Pelican Island Audubon Society has listed the ten major areas of Environmental and Human Concern in Indian River County. That list follows.

Areas of Environmental and Human Concern

1. Preservation and Protection of The Indian River Estuary, Including:

    a. Red and Black Mangrove swamplands
    b. Batis (pickleweed) marsh
    c. Submerged marine grass beds
    d. Spoil Islands
    e. Marshland functions
        (1) Marine productivity
        (2) Hurricane and storm protection
        (3) Wildlife feeding and nesting habitat
        (4) Pollutant filtration
        (5) Aesthetic values

2. Water Resources

    a. Shallow well aquifer
    b. Floridan aquifer
    c. Protection of recharge areas
    d. St. Johns River headwater marshlands

3. Water Pollution Abatement

    a. Sewage treatment plants
    b. Septic tanks and drainfields
    c. Canals and ditches
    d. Lakes, ponds, borrow pits
    e. Agricultural runoff
    f. Urban runoff
    g. Public health
    h. Tertiary treatment, land-spraying
    i. Sand-mining operations

4. Solid Waste Disposal

    a. Sanitary land fills
    b. Recycling
    c. Littering

5. Dune and Beach Protection and Restoration

6. Rare and Endangered Habitats

    a. Parklands
    b. Coastal forest hammocks
    c. Sand pine community
    d. Pine-flatwood community
    e. Freshwater marsh community

7. Noise Pollution

8. Air Pollution

9. Growth and Development Impact

    a. Environmental
    b. Economic
    c. Social

10. Development of Land-Use Policies and Ethics

Endangered and Threatened Wildlife in Indian River County

Endangered - Wildlife in this category are in danger of disappearing unless steps are taken to prevent this.

Birds: Wood Stork - A wetland inhabitant in marshes and water impoundments. In recent years 100-200 pairs have been nesting annually on Pelican Island.

Florida Everglade Kite - Not more than 100-150 of these freshwater marsh inhabiting birds survive in Florida. Several pairs have been found each spring in the St. Johns Water Management District reservoir west of Vero Beach, but overdrainage of this reservoir and subsequent loss of the Apple Snail--its sole food--has caused nesting failures.

Red-cockaded Woodpecker - Less than a half dozen birds occur in Indian River County, in a strip of Slash Pine forest along the upper reaches of the Sebastian River, southwest of Roseland. This species is dependent upon pines that have a fungus disease of the heartwood in which they excavate their nesting and roosting cavities.

Mammals: Florida Panther - Possibly one or two pairs of this rare carnivore, sometimes called a puma, or cougar, remain precariously in the wilder parts of Indian River County.

Manatee - Each winter several manatees are seen in the Indian River, especially in the warmer waters of the lagoon and canal near Vista Harbors and the outfall canal of the Vero Beach power plant. They are particularly vulnerable to injury by outboard motor propellers.

Reptiles: American Crocodile - This reptile is usually found only along the coastal areas of south Florida and the keys, but a large 15-foot crocodile was found in 1974 in a pond at Vista Royale south of Vero Beach.

Atlantic Green Turtle - each year several females of this species come ashore to lay eggs on the beach.

Atlantic Saltmarsh Snake - one of the few snakes found in salt water. It is a harmless water snake and may be found inhabiting mosquito control impoundments on both sides of the Indian River.

Threatened - Wildlife not in imminent danger of extinction, but could become endangered if conditions worsen.

Birds: Brown Pelican - Indian River County probably has the largest concentration of Brown Pelicans in North America. Outside of Florida pesticides have seriously affected this species reproduction.

Magnificent Frigatebird - Occasionally seen over the Indian River and the beach and at Pelican Island. Considered threatened because its only nesting area in North America is on the Marquesas Keys near Key West.

Reddish Egret - One or two individuals are seen each year in the Indian River and at Sebastian Inlet. The last species to recover from the slaughter of the plume trade days.

Roseate Spoonbill - Several dozen or more of this species visit Indian River Cojnty during the spring and summer. Occasionally seen in larger drainage canals west of Vero Beach.

Osprey - Several breeding pairs found along the Indian River and at Blue Cypress Lake. More numerous in winter when northern birds are present.

Caracara - Only around 250 estimated to remain in Florida. One or two are sometimes seen in ranch areas in western parts of the county.

American Oystercatcher - Two, possibly three pairs nest on spoil islands in Indian River. Very intolerant of human disturbance.

Least Tern - Our smallest tern, here in summer only and often seen fishing in the surf. Dependent upon spoil islands and sand spits for nesting sites.

Florida Scrub Jay - Probably less than a dozen pairs remain in Indian River County in Sandpine-scrub oak communities near Donald MacDonald Park, Winter Beach-Gifford area along Old Dixie, and Whispering Palms area, south of Vero Beach. Dependent upon undisturbed scrub habitat.

Mammals: Florida Mouse - Found only in sandpine-scrub habitat on the Florida ridge.

Florida Beach Mouse - Although relatively common farther north, the destruction of beach dune vegetation in Indian River County has greatly reduced the numbers of this tiny, pale-brown mouse.

Round-tailed Muskrat - Found in freshwater marshes, but few remain in Indian River County because of overdrainage.

Reptiles: Gopher Tortoise - Although still frequently seen in our area, the destruction of Sandpine and Slash Pine Flatwoods habitat has greatly reduced their numbers.

Atlantic Loggerhead Turtle - Several hundred females nest each year on Indian River County beaches, but successful hatching is low because of predation by raccoons, disturbance by people and excessive beach erosion where man-made structures are too close to the beach.

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We live in a finite world and almost infinite demands on those resources.

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Since our petroleum and nuclear resources are finite, we will have to manage them wisely.

Concept B 30

Resources shape the direction a nation develops.

Concept C 33

The people in a given area, in their attempt to survive, control the direction of progress through their use of local resources.

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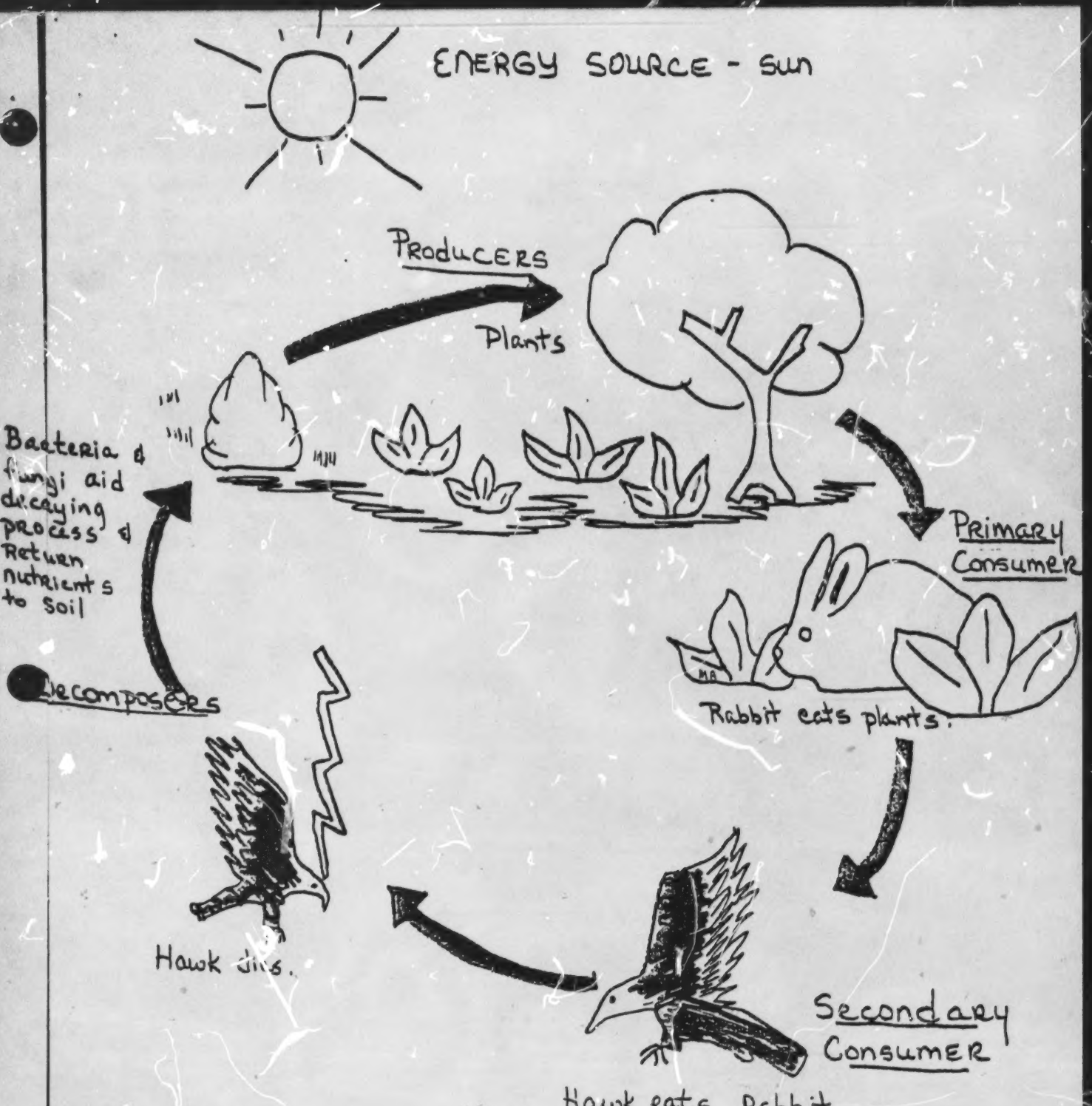


Scheme I

All living things including man are interrelated and, therefore, are also interdependent.

CONCEPTUAL SCHEME I

Florida's Endangered Species

ALL LIVING THINGS INCLUDING MAN ARE INTERRELATED, THEREFORE, ARE ALSO INTERDEPENDENT.

All living things are interrelated and interdependent to one another. The basic concept of the biological study of man and animal is their coexistence in nature.

Man, with his reasoning powers, has the ability to use nature to a greater advantage; therefore, he can adapt to almost any environment. Animals must use the environment as it is found. As man changes the environment for his benefit, comfort, and enjoyment, the habitat of other animals is usually restricted or destroyed.

As man changes the environment to best benefit him, he eliminates the essentials of life for many animals in the ecological chain. A break-down in the environmental chain creates problems for both man and animal. Since man has the ability to destroy the environmental chain, it is also the responsibility of man to take into consideration those species whose habitat he is decreasing or eliminating.

Concept A - Endangered Animals of Florida. Why?

Birds

- Wood Stork
- Peregrine Falcon
- Florida Everglade Kite
- Cuban Snowy Plover
- Ivory-billed Woodpecker
- Red-Cockaded Woodpecker
- Bachman's Warbler
- Kirtland's Warbler
- Florida Grasshopper Sparrow

Scheme I - A

	Dusky Seaside Sparrow
	Cape Sable Seaside Sparrow
Mammals	Gray Myotis Bat
	Mangrove Fox Squirrel
	Key Largo Cotton Mouse
	Key Largo Woodrat
	Everglades Mink
	Florida Panther
	Manatee
Fishes	Key Silverside
	Okaloosa Darter
Amphibians	Pine Barrens Treefrog
Reptiles	American Crocodile
	Atlantic Green Turtle
	Atlantic Hawksbill Turtle
	Atlantic Ridley Turtle
	Atlantic Salt Marsh Watersnake
	Short-tailed Snake

Scheme I - A

Activity 1

1. Have the students study the territory in which each endangered species lives. Stretch this activity over a long period of time.
2. Study ways that each species is suited to live in the territory (gathering food, land animal, water animal, lives on land and in water).
3. Benefit of species to man (part played in balance of nature.)
4. Study of the interdependence of man, plants and animals on environment.
5. Things that cause man to destroy the habitat of other animals (growth of population, demand for food, demand for recreation, demand for housing).
6. What can man do to help keep a balance in nature (education, laws, and co-existence of man and animal)
7. Field trips where possible.
8. Students to prepare a class report on each endangered species.

Concept B

All plant and animal life is dependent upon water.

The purpose of this exercise is to show the class the importance of water to all living things. From this lesson they should learn some of their responsibilities in protecting our water supply.

Scheme I - B

Activity 1

Apparatus and Materials:

2 one-quart containers

Freshwater

Goldfish, crawfish or any other water creature

Chlorine

Fill two containers with drinkable water. Place creature (fish or other) in the water of each container. Add chlorine to one. This will not change the appearance of the water, but will kill the fish.

Have a student explain this procedure.

Questions:

1. What do we have here?
2. From which container would you like a drink?
3. Have a student transfer the fish from the drinkable water to the chlorine water. Shortly after the fish is placed in the chlorine it will die.
4. What caused the fish to die? (Chlorine is a pollutant.)
5. Would any student like to drink the water which killed the fish?
6. Are harmful things put into our drinking water supply? Where? (At our purification plants.)
7. What happens to water waste from city homes? (It is treated and returned to freshwater streams.)

Concept C

All living things depend upon the natural materials for the conditions of life.

Scheme I - C

Activity 1

Place before the class a resource and rainfall map of the United States.

1. Explain the map legend (key) so students can identify areas of rainfall from little to great amounts.
2. Identify areas where there is sufficient rainfall for forests and crops. Identify areas of little rainfall.
3. Where is there sufficient rainfall to support some grasslands or crops? (West of the 98th meridian to the Rocky Mountain Foothills)
   (a) Who owned the grasslands? (Federal government)
   (b) Where could cattle graze? (Anywhere on the open range)
   (c) Where could cattle find water? (Wells, springs, Lakes, small streams and rivers)
4. What two resources were of great importance to cattlemen? (Water - grassland)
5. Why did farmers acquire land on the Great Plains? (Fertile land in the East was exhausted, railroad transportation extended west to the mountains, the Homestead Act)
6. How did the farmers plan to use land on the Great Plains? (Plow the grassland and grow grain)
7. How were the farmers a threat to the cattlemen? (Destruction of the grasslands)

Scheme I - C

Activity 1 (cont.)

8. What adjustments did the plains farmer have to make in his life-style? (Live in sod houses, dig deep wells, find substitutes for wood, build fences with barbed wire)
9. Who invented barbed wire? (Joseph Gidden)
10. How did the farmer use the barbed wire? (To close the open range, protect crops and water supply from range cattle)
11. Why did this anger the cattlemen? (It prevented them from using the government-owned open range.)
12. Who was right? (Neither or both)
13. What happened to both? (Under the Homestead Act the open range was settled. Farmers and cattlemen were forced to work together to settle their problems.)

Materials:

U. S. Resource & Rainfall transparencies

Resources:

The Cowboys. George Constable, Series editor. New York: Time-Life Books, 1974.

Graff, Henry F. The Free and the Brave. Chicago: Rand, McNally & Co., 1965.

The Pioneers. George Constable, Series editor. New York: Time-Life Books, 1974.

Scheme I - D

Concept D

The foundations of man's survival are the natural resources of the earth.

Activity 1

Materials: Wooden objects of various sizes

The purpose of this exercise is to help the students understand that the forests of America were the wealth and security of the frontiersman.

Place several wooden objects before the class. Identify each. Have objects of varying sizes. Identify the wood from which each object is made. Discuss the beginning of one or all objects.

1. Name several ways the frontiersman used this resource for protection. (Weapons, shelter, heat)
2. As the increasing numbers of settlers destroyed the forest, what other resources began to suffer? (Wildlife, land eroded, streams were filled with mud and silt, man suffered from floods)
3. Why were the forests one of the first sources of income and advancement for the early settlers in America? (lumbering became one of the largest early colonial industries; woods were used for shipbuilding, homes, tools, farm implements, furniture, barns and fences.)
4. What created one of the first businesses in America? (Shipbuilding - ships were used for trade)

Scheme I - D

Activity 1 (cont.)

5. How did settlers greed for profits cause coastal area destruction of forests and other natural resources? (The lumbering industry harvested the forests with no thought of conservation. Mountain land in New England was left nude to erode away. Forest fires killed young trees. In the coastal plains profits from farming caused settlers to destroy huge areas of the forest, use the land until it was no longer productive, and then repeat the process to secure new land. The abandoned fields were left to erode and become covered with useless vegetation.)
6. Have samples of pitch, tar, resin and turpentine.
7. What name is given to this group of products? (Naval stores)
8. Why were they called naval stores? (They were used to build ships for navies and also for trade.)
9. How did British investors prove the value of establishing colonies in America? (Shipping forest products in world trade)
10. Why did the British want to stop the colonists from trading with other nations? (Britain wanted all the profits for her investors)
11. Why were the tallest straight pines marked for the King's use? (To be used for masts on British naval vessels.)

Scheme I - E

Concept E

Water pollution a problem -- regional and local governmental organizations are modifying their procedures for interaction.

Activity 1

Materials: Poster, sign

On the board or a poster produced by a student show a picture of our capital on the Potomac River. Place a sign under it which reads: "Polluted water, unfit for use until purified."

1. What is pollution?
2. What causes pollution?
3. After it occurs, is pollution everyones problem?
4. List ways familiar to you in which water is polluted. (Detergents, oil, factories, sewage)
5. How can we as individuals detect pollution?
6. What are sources of oil pollution?
7. How are expanding urban populations adding to America's pollution problems?
8. What happens to industrial wastes? (They become pollutants in our streams and rivers.)
9. What happens to fish and other water animals in rivers polluted by waste? (Rivers become dangerous for water animals.)
10. Does this mean that our water is not safe for use by humans? (Yes--until it has been purified.)

Scheme I - E

Activity 1 (cont.)

Resources:

America's Shame: Water Pollution -- U.S. Department of HEW

Be a Pollution Detective -- U.S. Department of HEW

Nobile, Phillip and John Deedy, editors. The Complete Ecology Factbook. Garden City, New YOrk: Doubleday & Co., Inc., 1972.

The Sickening Story of Water Pollution -- U.S. Dept. of HEW

What's Happening to our Waters -- U. S. Department of HEW
330 Independence Avenue
Washington, D.C., 20201

Concept F

The major occupations and industries of a given area directly affect use of regional resources.

Activity 1

Purpose: To show the effect of grazing industry on the resources of the west.

Materials:

Outline maps of the United States

Overhead transparency of "Cattle Routes"

THE CATTLE KINGDOM

Scheme I - F

Activity 1 (cont.)

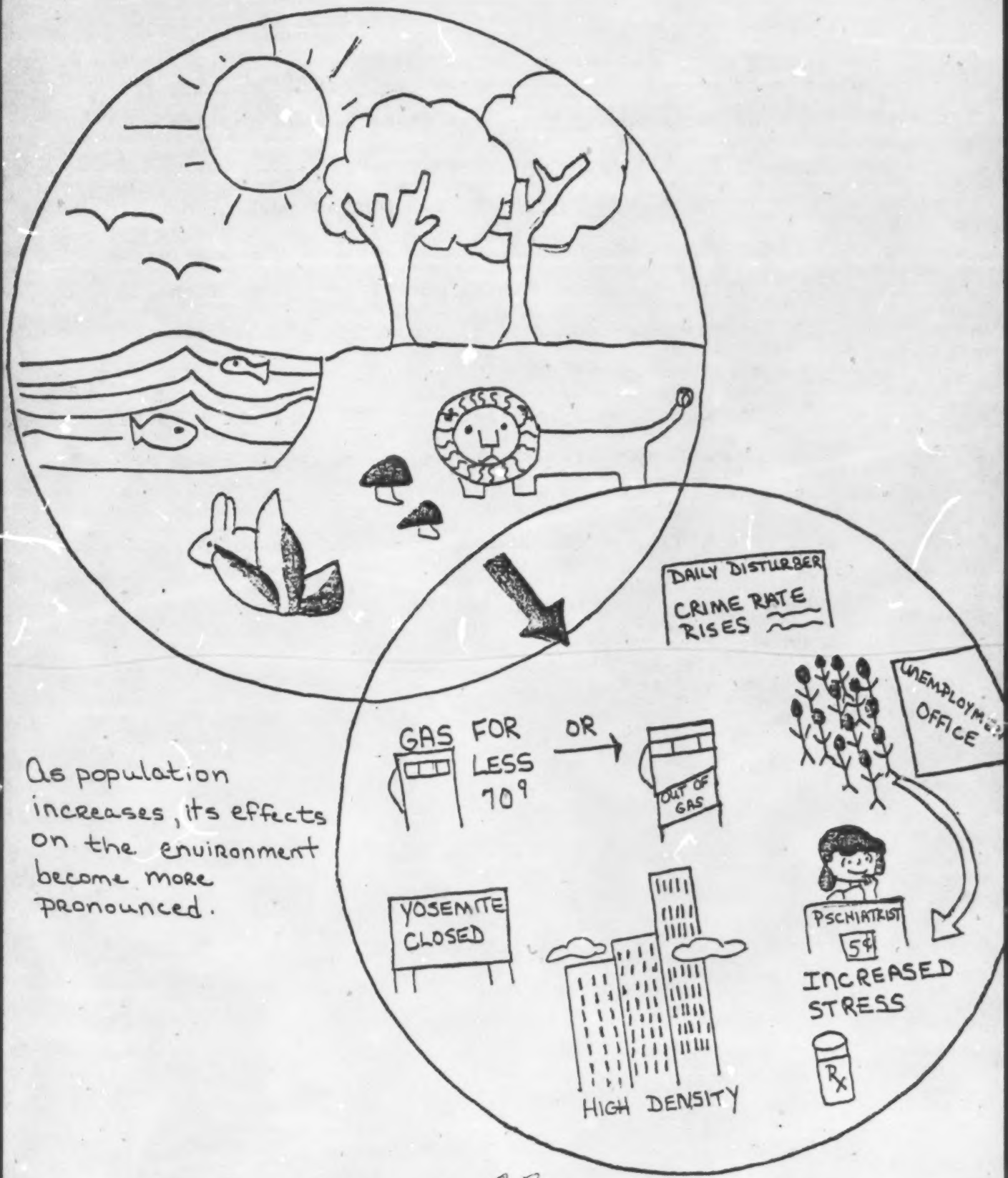
1. Have class give description of the American cowboy as portrayed on TV. List these characteristics on the blackboard or overhead projector. What attracted men to choose this line of work? What were some of the hazards?
2. Distribute United States outline maps. Tell the students to copy from overhead transparency the cattle routes.
3. Locate the major cattletowns. Why were these routes chosen? (Grass, water) What were cattle kingdoms and why did they develop? What effect did overstocking have on the resources? On the buffalo?

Resources:

The Cowboys, Time-Life.

The Free and the Brave, Henry McGraff.

Scheme II



As population increases, its effects on the environment become more pronounced.

CONCEPTUAL SCHEME II

AS A POPULATION INCREASES, ITS EFFECTS ON THE ENVIRONMENT BECOMES MORE PRONOUNCED.

As population increases, population density makes greater demands on the surrounding area. The environment of any area is capable of supporting a finite number of people, if that capacity is exceeded, the environment will not supply the demand of the surplus individuals and some will die. When the population levels are near the carrying capacity of the environment, individual members of the population will receive only their minimal requirements for existence. This fundamental ecological principle applies to man and also the quality of life that man enjoys. The earth has finite resources and as the population increases these resources will be distributed to individuals in diminishing amounts. Thus, as man's population grows, his standard of living will be reduced.

Concept A

Members of a population tend to exhibit definite spatial distributions.

Activity 1

Obtain a current road map of Florida. Study the map keys and try to make a general analysis concerning population densities in Florida.

--Study the coastal areas of Florida. What percentage of the population will live in a five-mile strip around the coast.

Scheme II - A

Activity 1 (cont.)

1. Why do people concentrate in this area? (The beach is a pleasant place to live. It is a recreational area and tourism has become a leading industry. In many respects life is not as fast as in larger cities.)
2. Ecologically, is this the best place for them to live? Why or why not? (Ecologically, this is not the best place for population to concentrate. Pollution becomes a problem, fresh water is becoming a problem. Living space is becoming limited. Population density is rising rapidly.)
3. As the only large inland city, why has Orlando grown so rapidly? Is this a good thing? (Orlando is located in the center of the state. It has become a major center of transportation. Centers of higher education are located there. Recently the creation of Disney World has caused a rapid growth of this city.)

Activity 2

Have students research the territorial behavior of any or all of these Florida animals: (1) Bald eagle, (2) Cougar, (3) Deer, (4) Brown pelican, (5) Osprey, or (6) Black bear.

Activity 3

The population of the United States has changed from rural to urban. In 1910, seven out of ten Americans lived on farms. In 1960, three out of ten lived on farms.

Scheme II - A

Activity 3 (cont.)

1. What caused the movement?
2. How did life change for man after moving to the city?
3. What were psychological and social and emotional effects on the individual and the family?
4. What environmental changes had to occur?

From the discussion of reasons for the movement to the cities and effects on man (and family unit) and on environment, have the groups illustrate the changes on paper in the form of sketches or cartoons. Each group should share their drawings with the entire class.

Resource:

The Free and the Brave, Henry F. McGraff.

Concept B

Man has modified his environment to the extent that some of the processes of natural selection no longer act on population.

Activity 1

1. Discuss inherited diseases that in the past have kept the people from reproducing (hemophilia). Do these people pass their disease on to their children? Will the number of these people increase? Why? (Hemophilia is a rare blood disease for which there is no known cure. This is a hereditary disease carried by the female but only inherited by the male. The

Scheme II - B

Activity 1 (cont.)

number of the people will decrease because their expectancy will be shortened. This disease prevents the blood from clotting and hemorraging cannot be prevented when the person is wounded.)

2. How has modern day medicine affected the composition of our population? (Modern medicine has reduced infant mortality, conquered most communicable diseases and has extended man's life expectancy beyond seventy years of age.)
3. Do you think resistance to disease is related to heredity? (Today man has built up natural immunities to some diseases in his region which may create a tendency which can be related to heredity.)

Activity 2

Assign students to research the spread of starlings in America. Have an oral discussion trying to resolve the following questions.

How does the spread of the starling in America illustrate the effect of no limiting factors? In what way? Explain. (The starling has adapted to every region in the United States. They have reproduced in great numbers and can survive in rural or urban areas. Climate in the United States has not been a factor in determining the habitat of the starling.)

Scheme II - B

Activity 3

The basic needs of men and animals seem to be approximately the same (living area, freedom from stress, territory, a stable reproductive process).

Discuss a "caged" man--such things as job pressures, tenement housing, crowded freeways, busy shopping centers, and overused recreational areas.

1. What other factors can you think of which tend to cage man? (Spectator sports, busses, classrooms.)
2. What influences an animal in its selection of a home territory? (Climate, shelter, food supply, rainfall, water supply.)
3. Do human beings consider the same things when seeking a place to live? (Man and animals tend to consider the same things but from a different view point. Man can make changes in his life style to adjust to the territory in which he chooses to live. Animals must accept the territory in its natural state. Any drastic change in his environment may cause his life style to be restricted or destroyed.)
4. Is environment compatible with the needs of man? (Man has the ability and the technology to change his environment to make it more compatible with his needs.)
5. What adjustments or avenues of escape can man exercise to insure his well-being and survival that lower animals cannot make or use? (Provide comforts, supply his need from other areas or countries, leave his own environment for periods of time to relieve pressures.)

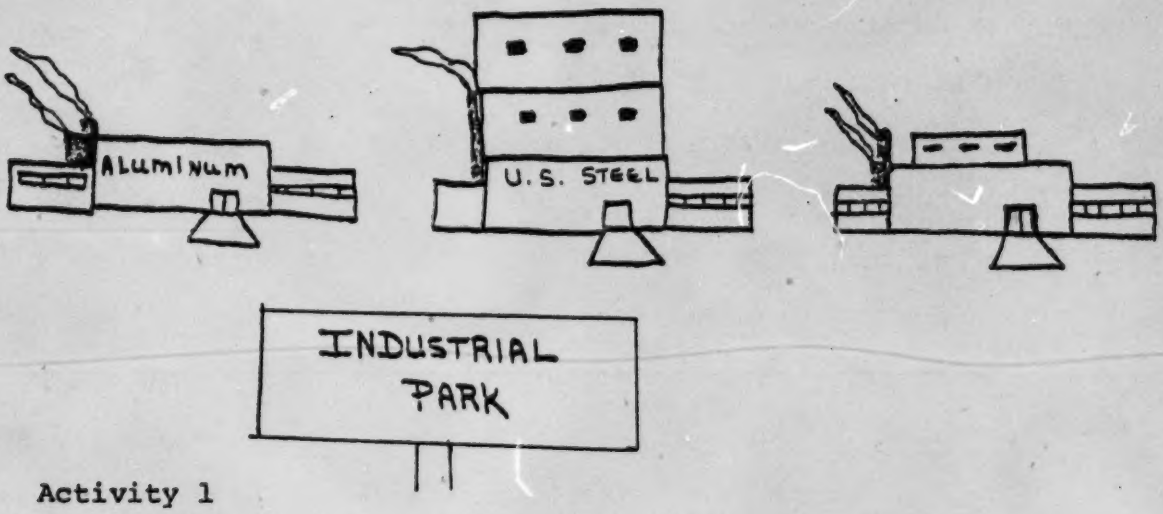
Scheme II - B

6. How do rural, suburban, and urban environments each suit or thwart the needs of man?

Concept C

Industrialization effects the overall quality of our environment.

Purpose: To help the students understand the effect of industry on the environment.



Activity 1

Ask for volunteers for two groups. These groups will be asked to research farm life and city life after the Civil War. From this information they are to plan and perform a brief skit, one for research and one for planning and organization. Emphasize skits are to be informal and are mainly to set the stage for class discussion of problems of city life and its eventual effect on its residents. After the skits are presented, a class discussion should follow. What provisions were made for garbage collection, sewage, protection? What

Scheme II - C

Activity 1 (cont.)

were the working conditions in the "sweat shops" (emphasize lives lost because of absence of safety devices, poor health conditions)? What public health facilities were available?

Resources:

Gardner, Joseph L., Labor on the March, New York: Harper and Row, 1969.

Graff, Henry F., The Free and the Brave, Chicago: Rand McNally, 1968.

Meltzer, Milton, Bread and Roses, New York: Alfred A. Knopf, Inc., 1967.

The Pioneers, edited by Geroge Constable, Series Editor, et al, New York: Time-Life Books, 1974.

Concept D

Human population size, like that of other organisms, will be limited by environmental controls. However, by the time carrying capacity level for humans is reached, the quality of life will be very unpleasant; (a) overcrowding leads to aggression (crime rate), (b) overcrowding leads to abnormal behavior

Activity 1

Materials: Outline maps of U.S. and Europe for groups.

Use map of U.S. and Europe (same scale). Hand out copies to each group. Locate ten large cities with populations of one million plus and mark them with bright red stars. Locate ten smaller cities and mark them with a blue dot. Find crime rate of each blue dotted city and mark it in yellow next to the city. Find crime rate of each red starred city and mark

Scheme II - D

Activity 1 (cont.)

it in black next to the city. Make keys at the bottom of the maps.

1. Is there a large difference in crime rates of cities where there is apparent overcrowding and the smaller cities? If so, why?
2. Where would you expect crime to be the highest? Lowest?
3. Why is crime rate higher in crowded areas?
4. Each group is to decide on the best methods to reduce or keep rates down without hiring more policemen. Have the group leaders share these suggestions with the entire class.

Resource:

Delury, George E., executive editor. The World Almanac and Book of Facts. New York: Newspaper Enterprise Association, Inc.

Activity 2

Ask for a volunteer committee to investigate what areas of Indian River County have the highest crime rate. Are these generally considered the most urban and crowded areas?

Resource:

Indian River County Parks, Planning & Zoning Commission

Activity 3

Mark off a six foot square area, suggesting that this represents the environment. Have one student enter the space: At intervals of one minute, add students to the area in a

Scheme II - D

Activity 3 (cont.)

manner of geometric progression (1, 2, 4, 8, 16). No student should be in contact with another. Continue until no more can be added.

1. What percentage of the class was able to enter the area?
2. How long did it take to fill half of the area? All of the area?
3. How would this overcrowding effect the individual person? What are some of the things he would have to give up?
4. Is there a limit to what the world's population can safely become?
5. Did tension grow as the population increased? Why?
6. Did this experiment accurately depict the real environment? Why or why not?
7. Where would food come from if they were standing on all available ground?
8. How much space does an individual need to satisfy basic needs?

Resources:

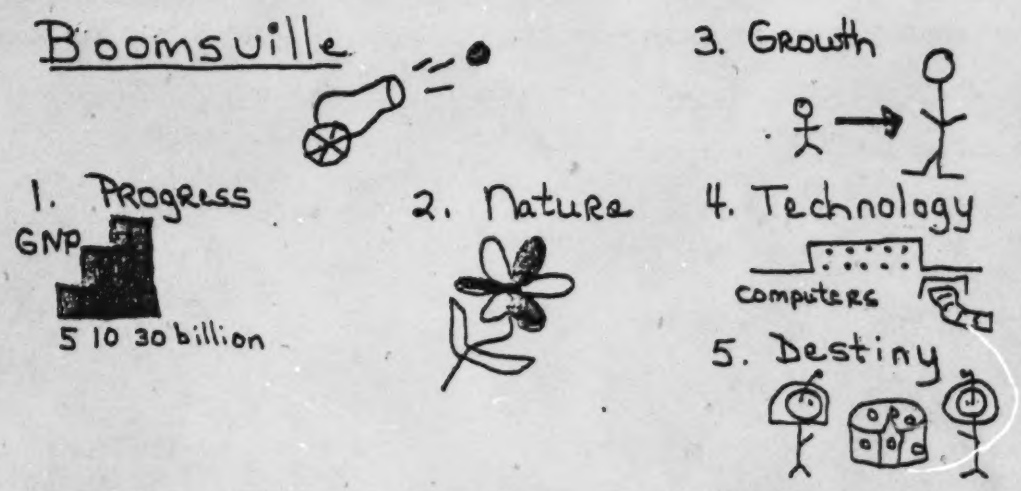
Drummond, A. H., Jr. The Population Puzzle. Reading, Massachusetts: Addison-Wesley Publishing Co., 1973, pp. 27-37.

Lowenherz, Robert J. Population. Mankato, Minnesota: Creative Educational Society, Inc., 1970, pp. 76-86.

Nobile, Phillip, and John Dudy, editors. The Complete Ecology Factbook. Garden City, New York: Doubleday Co., Inc., 1972, pp. 272-291.

Scheme II - D

Activity 4



Boomsville - (Cat. #1.187) Indian River County Instructional Media Center.

This is an 11-minute color cartoon film that covers American History and development from colonization of America through eventual colonization of another planet. The film encompasses five megaconcepts: (1) progress, (2) nature, (3) growth, destruction, (4) technology/power, and (5) destiny.

I. Introduction

Ask students to discuss the different meanings of the word "boom". Examples may range from boom on a sailboat or crane, a boom that swings a microphone over an actor, "lower the boom", a sound from thunder or a cannon, to industrial or economic boom. The teacher may want to consult an unabridged dictionary if discussion lags. What do they think the movie Boomsville is about?

II. Show film (without comment).

Scheme II - D

Activity 4 (cont.)

III. Discussion

1. Ask for reactions to the film.
2. What were general concepts shown in the film?
   a. Progress

      What is progress? Give specific examples of progress from the film. Was it planned? Is progress inevitable? How is it evaluated? Is progress desirable? Name desirable and undesirable examples of progress from the film. How do Americans reflect this progress? Does the film reflect these traditional measures? What is the goal of progress?

   b. Nature

      In this film, when is man closest to nature? What is nature? When do you feel was the Ideal Age? How did man relate to his environment then? When was man farthest from nature? State your evidence. What explains this separation?

   c. Growth/Destruction

      What is growth? (In humans, community) Was growth in the film planned? Controlled? Inevitable? Give examples of desirable progress. What do men give up? Is destruction the result of growth? Is consumption destruction?

Scheme II - D

Activity 4 (cont.)

d. Technology/Power

Name examples of technology from the film. How did it effect nature? How do you feel about man's use of this power?

e. Destiny

Is it man's destiny to make progress? What are the goals of men's destiny? Does this film reflect these goals? Does it question these commitments?

After the discussion, play the song "Where Do the Children Play?" from Cat Stevens album Tea for the Tillerman. Discuss the meaning of the song in relation to the movie. Then show the film again without the sound, playing the song. Tape of the song to go with the film is in the Junior High Library.

(Florida State University, Environmental Education Project)

Materials:

1. Film:"Boomsville"
2. Tape: "Where do the Children Play?" - in Junior High Library
3. Copy of the words of the song..See next page.

The following is to be used with Activity 4:

WHERE DO THE CHILDREN PLAY?

Well I think it's fine building jumbo planes
or taking a ride on a cosmic train, switch on
summer from a slot machine, yes get what you
want to, if you want, 'cause you can get anything
I know we've come a long way, we're changing day to day,
but tell me, where do the children play?

Well you roll on roads over fresh green grass,
for your lorry loads pumping petrol gas, and you
make them long and you make them tough, but they
just go on and on, and it seems that you can't
get off. Oh, I know we've come a long way,
we're changing day to day, but tell me, where
do the children play?

Well you've cracked the sky, scrapers fill the air
but will you keep on building higher 'til there's
no more room up there. Will you make us laugh,
will you make us cry, will you tell us when to live,
will you tell us when to die. I know we've come a long
way, we're changing day to day. But tell me,
where do the children play?

Scheme II - E

Concept E

Crowding of humans results in increased incidence of physiological diseases.

Activity 1

Use your County Health Department for research. Have a health official come to speak to your class concerning contagious diseases. Discuss their ease of transmission in crowded vs. uncrowded areas.

1. Is Indian River County beginning to get large enough so that contagious disease epidemics will become more prevalent?
2. Is crowding of schools more conducive to disease transmission?
3. Compare the spreading of contagious diseases through a tenament section with the spread of the diseases in a single family residential area.
4. Is our population becoming large enough for a nation-wide epidemic of a contagious disease such as Asian Flu?
5. Have students research the means by which certain diseases are spread from one person to another.

Resources:

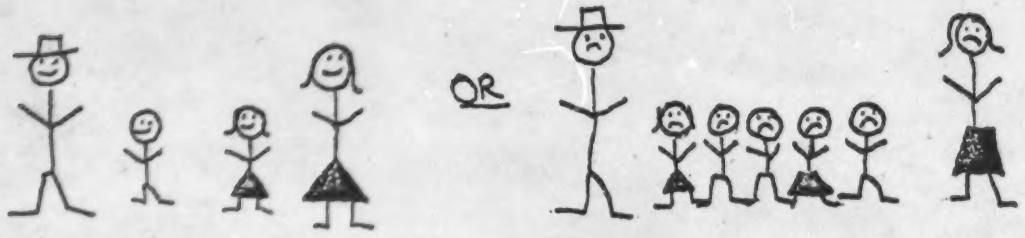
County Health Department

Drummond, A. H. Jr. The Population Puzzle. Reading, Massachusetts: Addison-Wesley Publishing Co., 1973.

Scheme II - E

Activity 2

Tragedy of the Commons



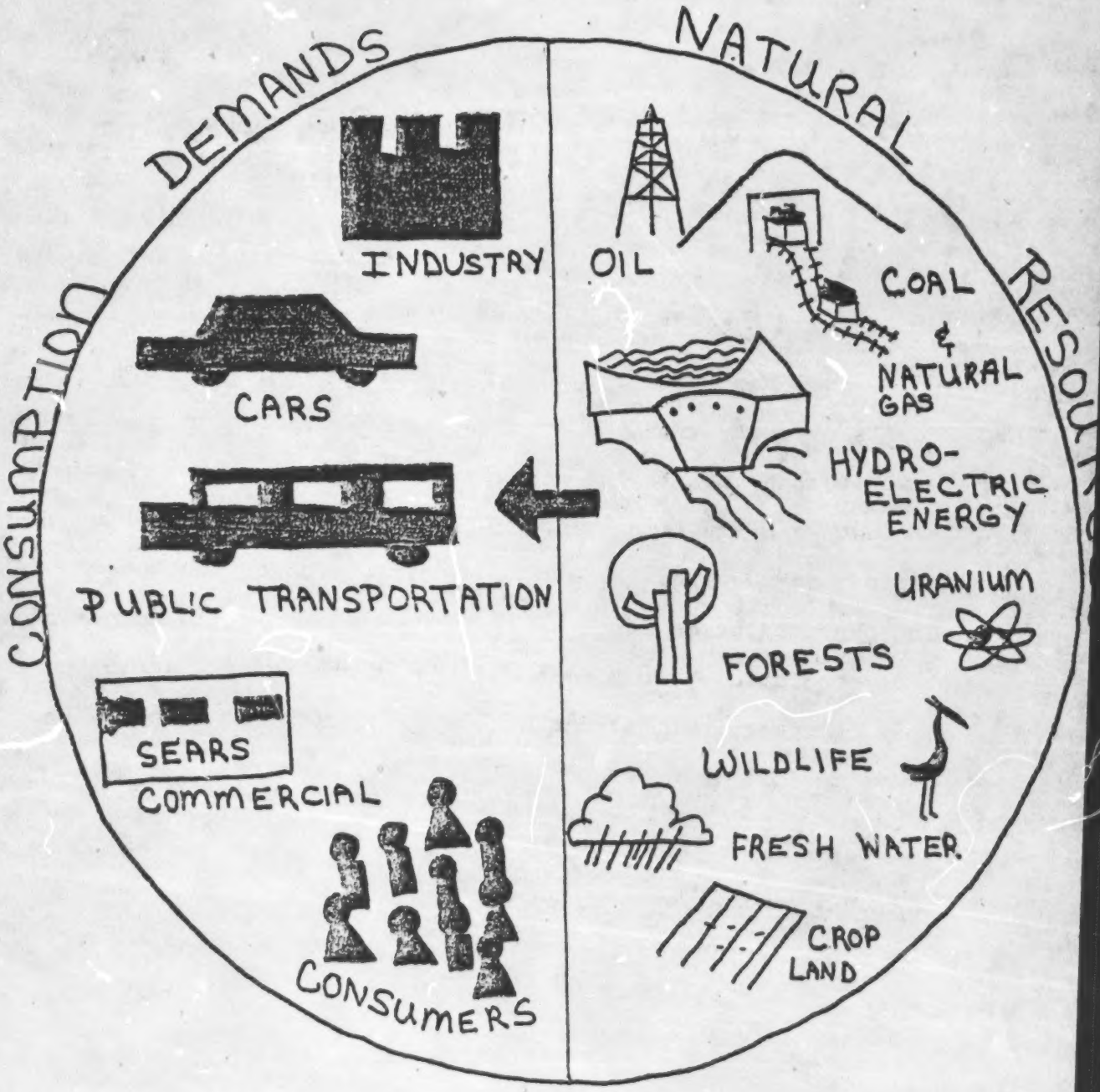
What will your choice be?

Show the film, Tragedy of the Commons. This film deals directly with the problems of overpopulation. It has two stopping points for discussion during the film. Also, a teacher discussion guide is included. The film begins with a commons and the eventual destruction of the commons by overpopulation of cattle. This is then related to human overpopulation. It also shows the psychological, social, and economic implications of overpopulation and also how we have to make value choices.

Resource:

Tragedy of the Commons, (3.047) 23 min.

Scheme 3



We live in a world of finite Resources and almost infinite demands on those Resources.

CONCEPTUAL SCHEME III

WE LIVE IN A FINITE WORLD AND ALMOST INFINITE DEMANDS ON THOSE RESOURCES.

Concept A

Since our petroleum and nuclear resources are finite, we will have to manage them wisely.

Activity 1

Purpose: To show rising costs as resources diminish.

Materials: Four Candy Bars

Wampum pieces (scrap paper)

Four candy bars with 8-12 sections each. Each student has 10 wampum pieces (torn scratch paper). Class makes bids on one section at a time. Record highest bidder and the price paid. Small groups may form to bid on remaining sections. (Note: relate to oil industry).

1. Graph results.
2. Why does price go up when resource becomes scarce?
3. How many years of oil reserves does the U.S. have left? (1973 - Nine years left of identifiable resources)
4. What will happen to price of gasoline, electricity, oil products?
5. How much will people be willing to spend for last few thousand gallons?
6. How will this effect standard of living? in what ways?

Scheme III - A

Activity 1 (cont.)

7. Do we waste energy resources? in what ways?
8. Is it worthwhile to begin conserving energy resources now?
9. Give examples of ways we are now trying to conserve. (local, national, international)

Resources:

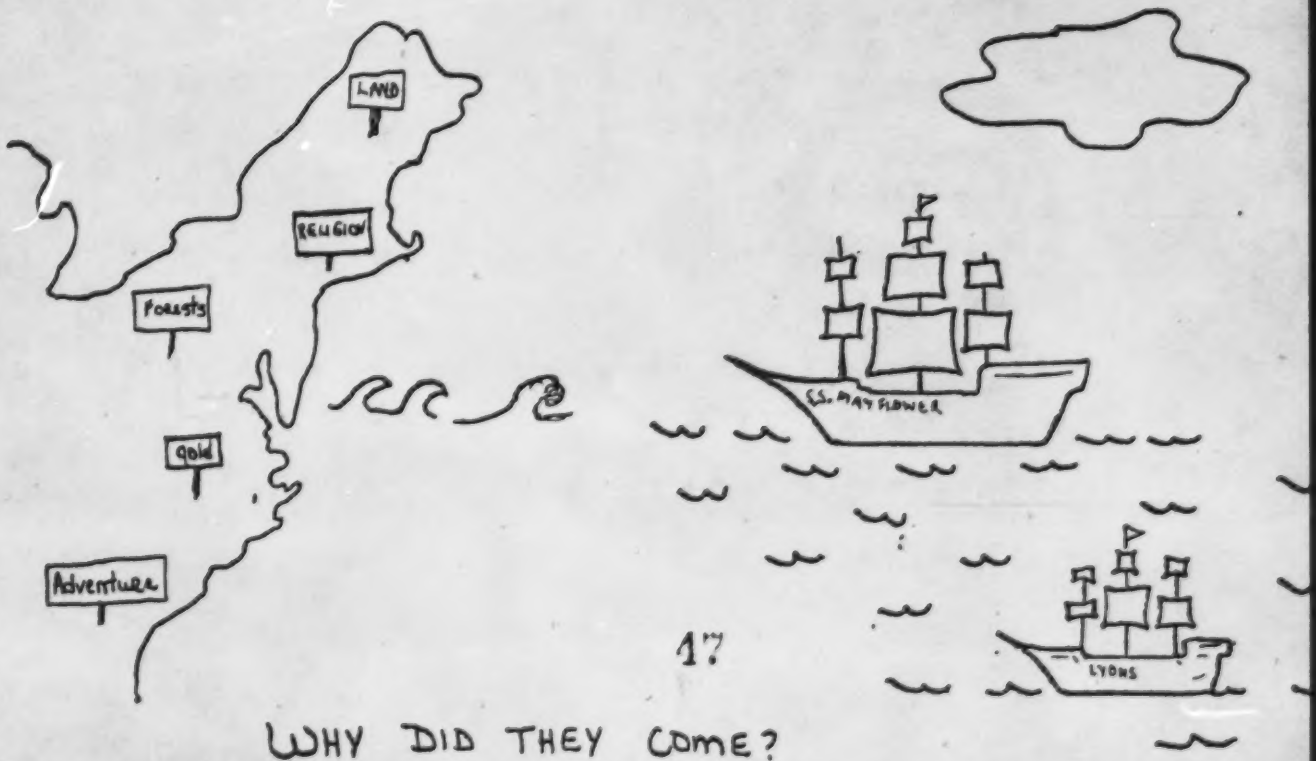
Breeden, Robert L. As We Live and Breathe. Washington D.C.: National Geographic Society, 1971.

Bixby, William, A World You Can Live In. New York: David McKay Co., Inc., 1971.

Paradis, Adrian A., Reclaiming the Earth. New York: David McKay Co., Inc., 1971.

Concept B

Resources shape the direction a nation develops.



Scheme III - B

Activity 1

Using individual outline maps of the original 13 colonies, have the students make up their own legends and place the major geographical features and major products in each section. Then form groups to discuss the reasons the colonists came to America. Why did they choose New England (middle or southern) area to settle? Describe their use of resources. How did the geographic features, climate and resources effect the development of the region?

Materials:

Outline map of 13 colonies

Overhead transparency of geographical features

Resources:

Graff, Henry F. The Free and the Brave. Chicago: Rand McNally & Co., 1965, p. 164.

Activity 2

Materials:

Outline map of the U.S.

Overhead transparency of resources

Have students make up their own keys and fill in their individual U.S. outline maps as to the resources that led to the westward migration. In groups, ask them to make a summary of the reasons various groups moved west. What effects did these pioneers have on environment? What measures were taken to protect or restore resources?

Resource:

Constable, George, series editor, et al, The Pioneers. New York: Time-Life Books, 1974.

Scheme III - B

Activity 3

Have the student make a collection of maps of the United States. Included in the collection should be contour maps, physical maps, political maps, rainfall maps, resource maps. On an outline map of the United States, have the students divide a physical map into the physical regions.

1. Discuss the physical regions which will influence the development of a region.
   a. Navigable rivers
   b. good harbors
   c. the fall line
   d. mountains
   e. plains
   f. rainfall
   g. natural resources.

   (Transparencies of maps suggested.)
2. Make a comparison of the eastern section of the United States with the section west of the Mississippi.
3. Discuss the effect of geography on past and present development of the United States. In the discussion, show the great importance of our resources in this development and how conservation of our resources is vital to keep America strong.

Materials:

Transparancies of the maps suggested

Individual outline maps of the United States

Globe.

Scheme III - B

Activity 3 (cont.)

References:

Youth Conservation Corps

Handbook of Environmental Awareness

Activity 4

Compare the Indian use of resources with the white mans. The Indian was a natural conservationist. Select a group of students to share the ways the Indians conserved their resources. Then have the class make comparisons with the white mans use.

Resources:

Baldwin, Gordon C. How the Indians Really Lived. New York: G. P. Putnam & Sons, 1967.

Constable, George, editor, The Indians. New York: Time-Life Books, 1974.

Constable, George, series editor. The Pioneers. New York: Time-Life Books, 1974.

Huntington, Ellsworth. The Red Man's Continent. New Haven, Connecticut: Yale University Press, 1919.

Tunis, Edwin. The Indians. Cleveland: World Publishing Co., 1959.

White, Anne. Indians of the Old West. New YOrk: Golden Press, 1958.

Concept C

The people in a given area, in their attempt to survive, control the direction of progress through their use of local resources.

Scheme III - C

Purpose: To show how people who settled the West had to adapt and make use of the environment to make a living.

Activity 1

Ask the groups to make observations from the overhead transparency about the types of vegetation they would expect to find in the different sections of the United States. What limitations confronted the new settlers in the West? How did they adapt to meet their needs for survival? Provide white paper for students to draw illustrations of the ways settlers used the environment to their advantage. What farming methods helped ruin the land? What new farming methods aided the farmer in his use of resources? Using textbooks and additional resource materials, these questions should be answered in cartoons or illustrations that depict the story of the settlement of the west.

Resources:

Graff, Henry F. The Free and the Brave. Chicago: Rand McNally, 1967.

Constable, George, Series editor, et al. The Cowboys. New York: Time-Life Books, 1974.

Constable, George, Series editor, et al. The Pioneers. New York: Time-Life Books, 1974.

Materials:

U. S. Rainfall map transparency

Activity 2

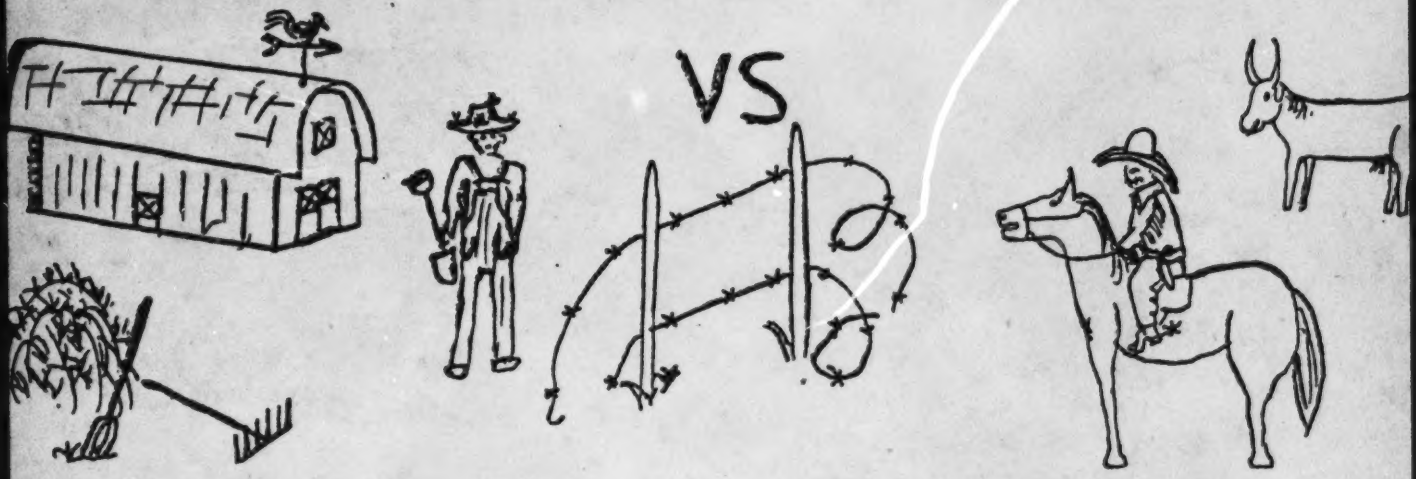
Materials:

U. S. Outline Map

Transparency of Physical Regions of the U. S.

·Scheme III - C

Activity 2 (cont.)



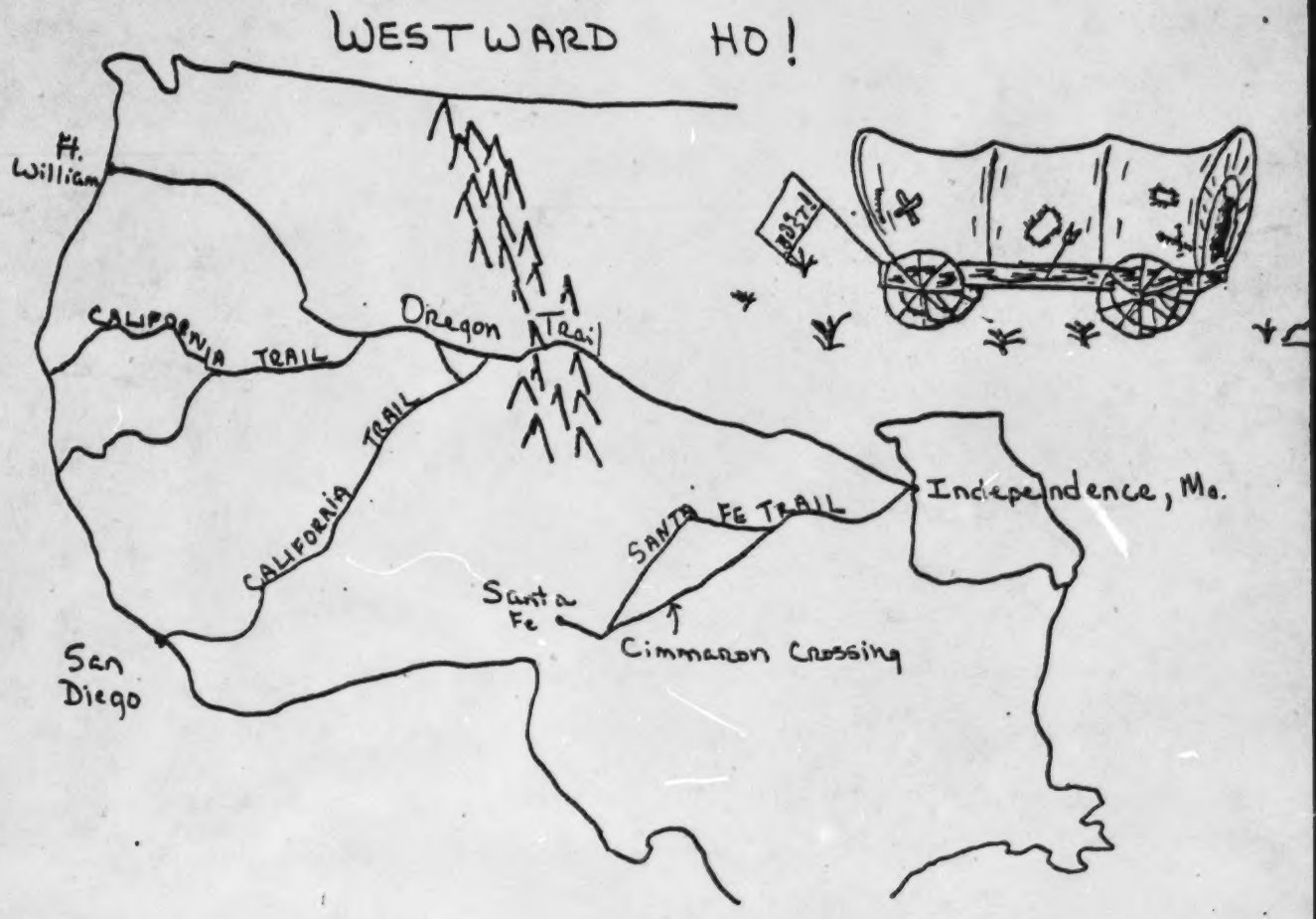
The purpose of this lesson is to point out the values of resources of water, soil, and grasslands to the cattlemen and farmers on the Great Plains.

1. On an outline map, have the students identify the Great Plains region of the United States. Give natural boundaries and states included.
2. Identify the major causes of conflict between the Great Plains cattlemen and the farmers. (water and grasslands)
3. State arguments the farmer may use to justify his method of land use. Do the same for the cattlemen. This will show the difference of opinion concerning the use of the resources of a natural region.
4. What are both the farmers and cattlemen trying to do? (resolve or end the conflict, become friends, and live peacefully together.)

Resources:

Constable, George, series editor, et al. The Cowboys. New York: Time-Life Books, 1974.

Constable, George, series editor, et al. The Pioneers. New York: Time-Life Books, 1974.



Activity 3

Materials:

Individual student maps showing frontier in 1870.

List on overhead projector of questions to be answered.

Purpose: To help students see reasons for the "pull" of the West and to understand the demands various groups made on the resources.

Divide the class into groups. Ask students to fill in resources that made the West attract settlers. Why did so many leave their homes in the East and make their way to the unknown and possibly dangerous West? What inventions in

technology led to changes and increased production? What conservation legislation was passed during 1880-1890? Have the students suggest reasons why the closing of the frontier increased public interest in conserving our resources. After discussion, ask groups to illustrate in cartoon form the two to three most important reasons for the westward migration. These can be displayed on the bulletin board.

Concept D

Economic systems are formed in direct relationship to the resources of the land.

Purpose: To help students better understand New Deal legislation.

Scheme III - D

Activity 1

Divide the class into five groups and assign the following topics:

1. Tennessee Valley Authority (TVA) Flood Control System.
2. Agricultural Adjustment Act (aid to farming).
3. Workers Progress Association (WPA) and Public Works Administration (PWA) - develop work and improve self-concept of working man.
4. Civilian Conservation Corps (CCC) - gave jobs to help replenish forests.
5. National Recovery Act (NRA) - gave power to business.

The final report to the class should answer how these boosted the United States economy through development of human and/or natural resources. Also, ask members of the class to include any recent news articles that parallel with New Deal legislation. (i.e. new dams, Job Corps, conservation laws, future restrictions on car industry.) These reports should be given in class followed by discussion. Illustrations would be helpful.

Resources: Boardman, Jon W. Jr. The Thirties. New York: Henry Z. Walch, Inc., 1967.

Graff, Henry F. The Free and the Brave. Chicago: Rand McNally, 1965.

World Book Encyclopedia. Chicago: Field Enterprises Educational Corporation.

Scheme III - D

Activity 2

Appalachia - a rich region in natural resources becomes a poverty district.

1. On an outline map of the eastern United States, locate the region called Appalachia.
2. What are the natural resources of this region?
3. By whom have these natural resources been harvested?
4. What has caused the great waste - strip-mining?
5. Who has borne the lasting results of this waste?
6. What can be done for Appalachia?
7. Can any of these resources be replaced or reclaimed?

Materials: 1. outline map of United States

2. map of resources

Resources: Caudill, Mary M. My Land is Dying. New York E.P. Dutton and Company, Inc., 1971

Munzer, Martha E. Pockets of Hope. New York: Alfred A. Knopf, 1967.

Concept E

People of a given nation desire the resources of other nations so they wage war to obtain these resources.

Activity 1

Materials:

Films and filmstrips on the war you are studying

Pictures and posters for bulletin board

Pamphlets - "The Glory Trail," Ernest Swift, NWF;

"Rubber Today and Tomorrow," Rubber Manufacturers Association.

The purpose of this exercise is to show that one of the basic causes for most wars has been the desire of "have not" nations to obtain the resources they need.

Show a movie or slide series of the war you are studying. List all the basic causes for the war. Then list the aims of the aggressor nation (the nation who starts the war). Make assignments from the text and other resources which are easily available to the students.

Scheme III - E

1. Why do nations wage war? (After seeing the films and filmstrips, many responses should be given. Allow time for discussion.)
2. Why do nations want to conquer other nations? (Discuss the aims of the aggressor in terms of their desire for resources they do not have in abundance in their own country.)
3. Assign reading materials from the text and other reference material on the causes of the war you are studying and then discuss the following questions:
   a. What resources did the aggressor nation want?
   b. Could these resources have been acquired by other means? (Without going to war?)
   c. If the aggressor nation had chosen to use means other than war, could he have achieved the same results?

The concept could be extended by having the class members write a composition on the "Importance of Natural Resources" in the beginning of this war. Conclude the study of the war with a discussion of the compositions.

This lesson could be used to introduce and end the study of any major war.

Scheme III - F

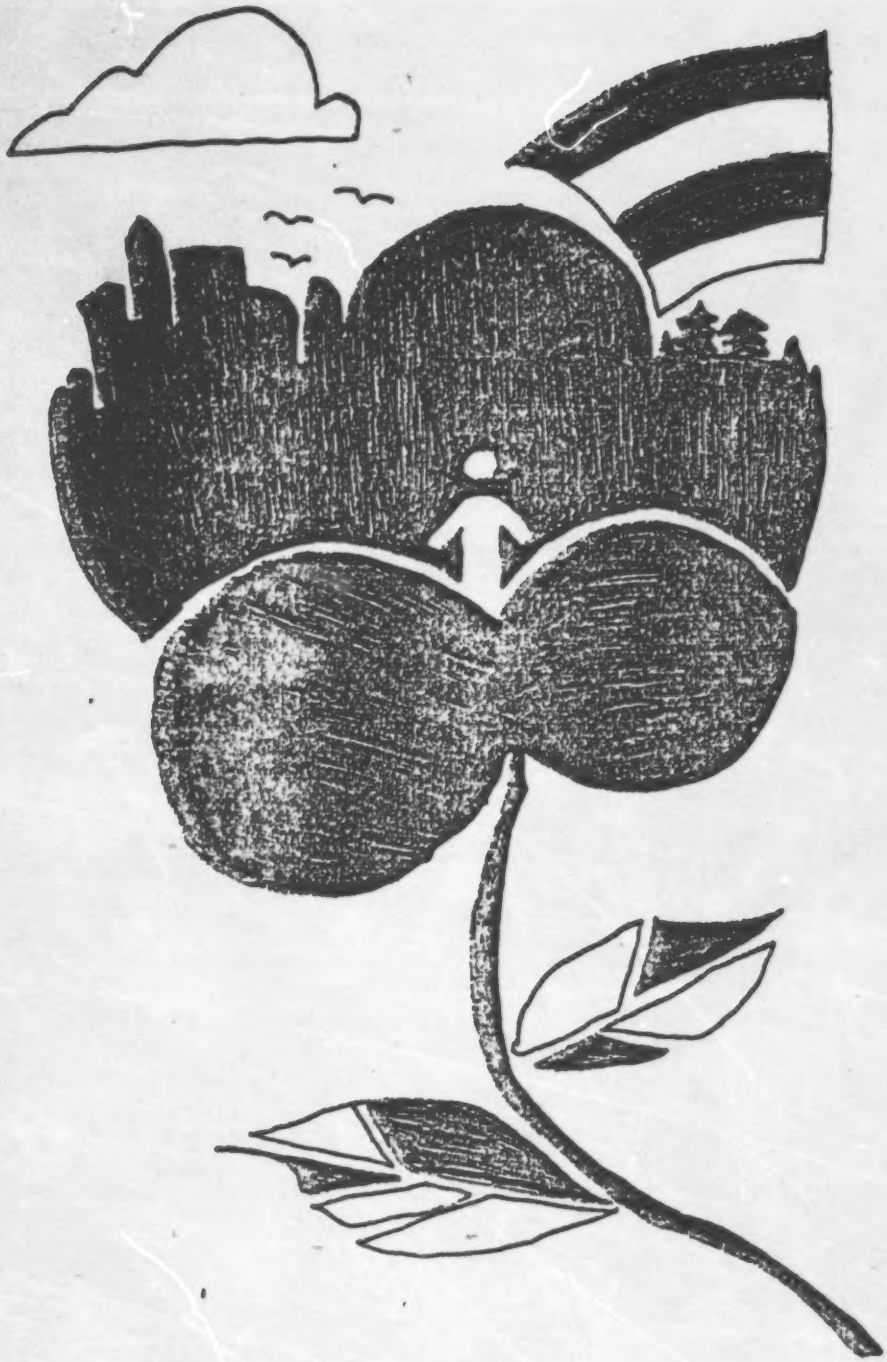
Concept F

Human needs and desires are greater than resources available.

Purpose: To show how Americans used available resources during World War II in terms of consumer goods and war supplies.

Activity 1

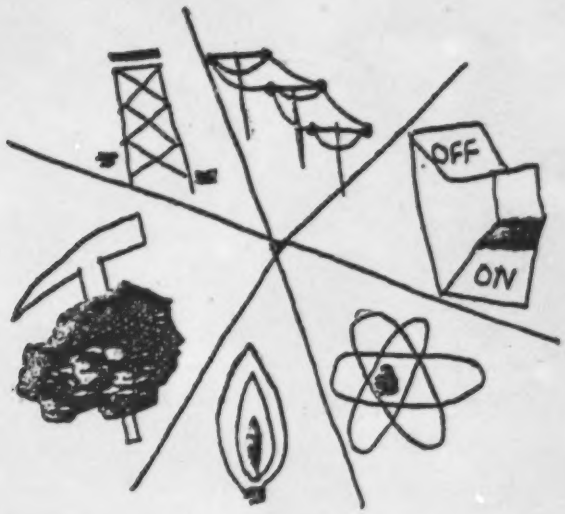
A few days in advance ask for two volunteers to make collage posters, one demonstrating war time supplies and industry, and one demonstrating peace time consumer goods. Then ask class for cartoons to show that certain resources were insufficient to meet consumer demands. What were sources for defense materials? What sacrifices did U. S. citizens at home have to make? What were chief industries in U. S. in 1940? How were private industries affected? How did Selective Service Act affect manpower? Then ask class for volunteers to summarize main points covered as theme for bulletin board.



Each individual has a role as an agent for change in the environment and therefore a responsibility to the environment.

Concept A

Conservation responsibilities must be shared by individuals, businesses, and industries, special interest groups, and all levels of government.



Activity 1

Materials: Copies of The Energy Challenge: What Can We Do?

Using the pamphlets, The Energy Challenge: What Can We Do?, have the groups list as many specific ways possible for the individual to save energy. Ask for volunteers to make posters of the results. After this exercise, students could possibly earn extra credit by bringing in additional ways of practical energy conservation methods to add to the list. In addition, students could make a checklist rating for their own home. A special group could be formed to compile a survey of how their classmates' homes compare on an energy conservation scale.

Scheme IV - A

Resource: The Energy Challenge: What Can We Do? Malvern, Pennsylvania: Energy Conservation Research 1974.
In Junior High Library.

Activity 2

Have students write down three ways that they spend money for consumable goods. Compile this into a comprehensive list to include as many different goods as possible. Then have the class take each item and determine the most pollution-free form of the item. Examples: can vs. returnables; bulk vs. individual wraps; frivolous packing vs. reasonable packing.

Then ask for a volunteer pilot group to do a comparison price study in at least two different stores of the categories. How much price do we pay for convenience, packing, wraps? This could lead to a discussion of value judgments. How much are you willing to pay for convenience?

:Scheme IV - B

Concept B

National leaders help shape programs to help conserve resources.

Purpose: To examine conservation efforts of leaders and their eventual contribution and effect on the resources.

Activity 1

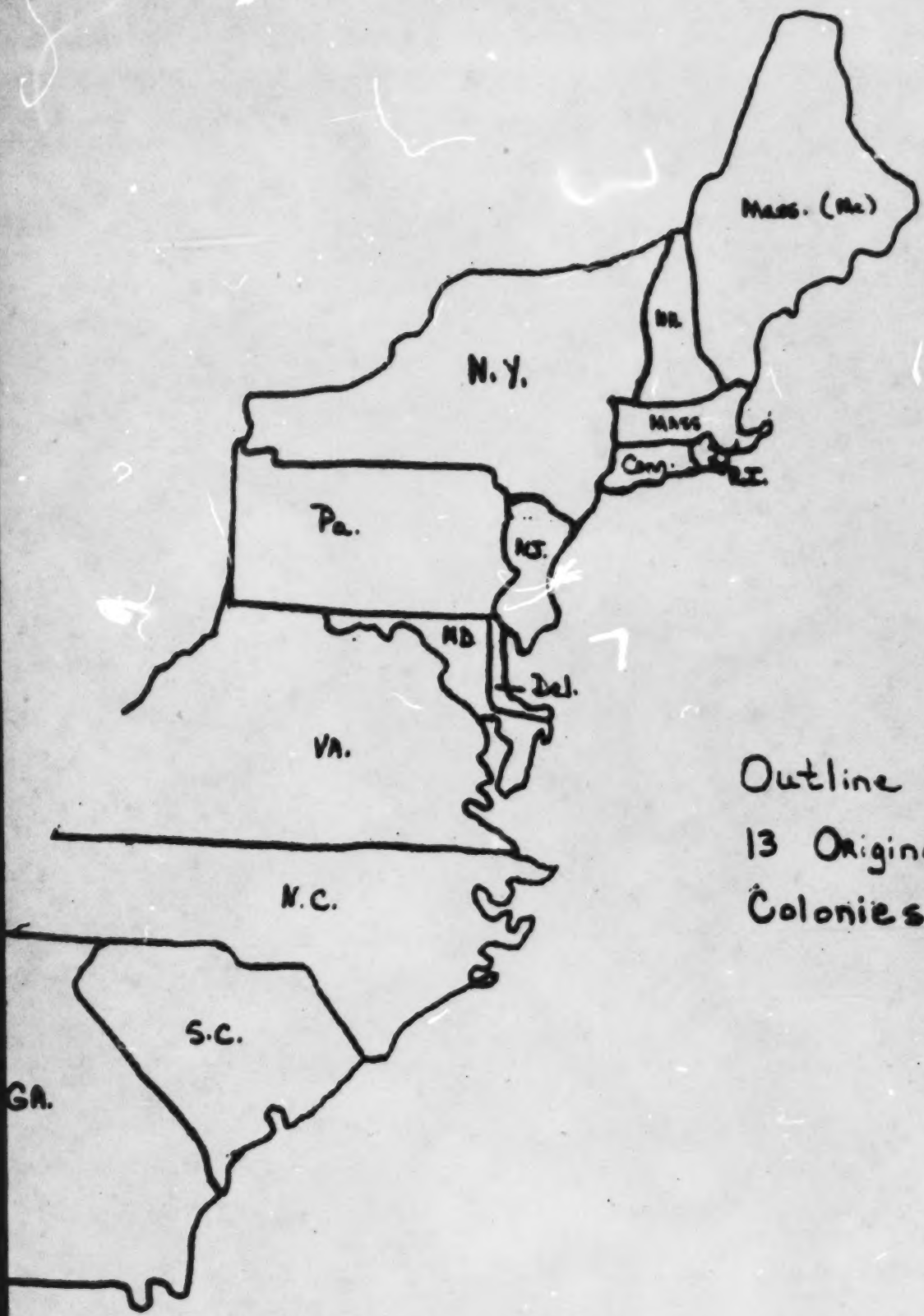
Ask for five volunteers to do research on lives of the following Americans: Benjamin Harrison, Grover Cleveland, Theodore Roosevelt, William Howard Taft, Franklin D. Roosevelt. The main emphasis of the reports is to be covering their conservation efforts. How did their achievements affect lives of Americans? These reports are to be given orally in class followed by discussion.

Resources: Selected biographies and encyclopedias.

MAP INDEX

Outline Map of U. S.

Outline Map of Europe



Outline Map of 13 Original Colonies